

Information Mastery and EBM

MS III Medicine Clerkship
RAHC



Goal of today's class:

Introduce you to computer-based
resources that will help reduce the

Work

needed to find information based upon
Valid and **Reliable** Evidence.

Relevance x Validity
Work



Assignment

- Search
<http://www.library.uthscsa.edu/rahc/EBM/assignment.htm>
 - Send topic to Dr. Hanley if you don't pick one from the list
- Oral presentation
<http://www.library.uthscsa.edu/rahc/EBM/presentation.htm>



Why not Google?



- Imprecise searches
- Results listings influenced by links to that article
- Most professional journal articles not available full-text on the web for free
- You will held for a higher level of accountability than previous physicians
- Isn't patient health worth a better search?

Seven Alternatives to EBM



[Isaacs D, Fitzgerald D. BMJ 1999 Dec 18; 319: 1618](#)

- Eminence based medicine
- Vehemence based medicine
- Eloquence based medicine
- Providence based medicine
- Diffidence based medicine
- Nervousness based medicine
- Confidence based medicine

How do you apply EBM?



- You look for the best available evidence
- You give more weight to the best designed studies
- You value patient outcomes over disease outcomes
- When evidence is limited, you use your clinical experience and the opinions of experts

Steps in EBM



- **Step 1:** Formulate an answerable question
- **Step 2:** Track down the best evidence with which to answer that question
- **Step 3:** Critically appraising the evidence (i.e., find out how good it is).

Steps in EBM



- **Step 4:** Apply the evidence (integrate the results with clinical expertise and patient values)
- **Step 5:** Evaluate your effectiveness and efficiency in executing steps 1–4 and seek ways to improve them both for next time

EBM Process: Step 1



How do you formulate an answerable clinical question?

PICO



- Patient, problem, population
- Intervention – what you are going to do to the patient
- Comparison – usual/standard intervention, or doing nothing.
- Outcome

Your case:



- P
In ...
- I
would ...
- C
compared to ...
- O
result in ... ?

Sample patient



Your patient is a 72-year-old woman with osteoarthritis of the knees and moderate hypertension, accompanied by her daughter, a lab tech from the hospital. The daughter wants you to give her mother a prescription for one of the new COX-2 inhibitors. She has heard that they cause less GI bleeding.

EBM Process: Step 2



How to Find the Current Best Evidence

Sources of Information

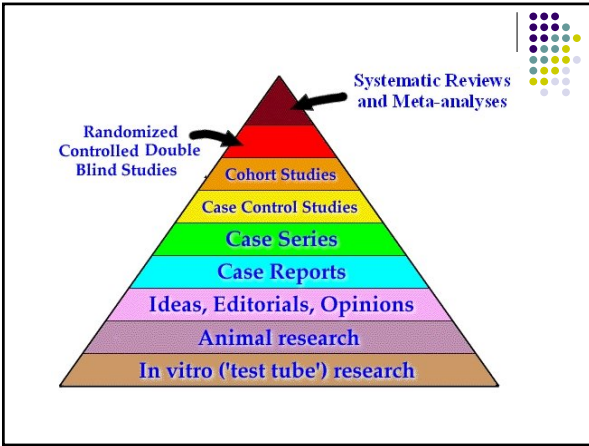


- Patients
- Colleagues
- Texts
- Journals
- Electronic Resources
- Practice guidelines
- Internet
- Systematic texts
- Drug Reps
- Media – videos, models

All evidence is not equal



- Only a small portion of medical literature is useful in answering clinical questions.
- High levels of evidence may not exist for all clinical questions because of the nature of medical problems and research and ethical limitations.



Medline

- Indexes almost 5000 different journals
- Contains over 15 million references
- Adds over 400,000 new entries yearly

Other EBM Resources in OVID

- Cochrane Databases of Systematic Reviews
- DARE
- Controlled Trials Register
- ACP Journal Club
- Search [All EBM Reviews](#)

Reducing work



Let someone else do the heavy lifting!

- searching the literature
- regularly reviewing journals
- critical appraisal
- summarizing evidence

There are many sources of EBM where someone else did the work for you

EBM Clinical Systems



Structured, evidence-based information pertaining to specific clinical questions.

Use these databases for quick answers to clinical questions

- DynaMed
- InfoRetriever
- PIER – Physicians Information and Education Resource

STATref | migranography | Search | Advanced Search

Home | Preferences | Help | STATNotes | Font | Print | Statman's Look Up

ACP PIER: The Physicians' Information and Education Resource

Disabling intensity (altered usual daily activities during headache episodes).

Laboratory Tests

3.3 Recognize that neuroimaging is not usually warranted for migraine patients and a normal neurologic examination.

Specific recommendation:

- Apply a lower threshold for obtaining neuroimaging only for patients with atypical headache features or for those whose headaches do not fulfil the strict definition of migraine.
- See table [Laboratory and Other Studies for Headache](#).

Rationale:

- MRI or CT is unlikely to reveal an abnormality in migraine patients and a normal neurologic examination.

Evidence:

- A meta-analysis of studies of migraine patients and a normal neurologic examination found a rate of significant intracranial lesions of 0.38%.

Comments:

- None.

3.4 Consider a diagnosis of temporal arteritis or other vasculitides in patients over age 50 who have a new-onset headache or a change in previous headaches.

Specific recommendation:

- Obtain an ESR in patients over age 50 who have new-onset headache to exclude the possibility of temporal arteritis.

InfoPOEMs
 Informatics Archives
 Evidence-based
 Product Team
 Request
 Feedback
 Contact Us
 LOR

Dihydroergotamine less effective for migraine

Clinical question
 Is dihydroergotamine as effective as other drugs in the acute management of migraine in adults?

Bottom line
 Dihydroergotamine is not as effective as sumatriptan (Imitrex) when used by itself for the acute treatment of migraine. When used in combination with an anti-emetic it is at least as effective as analgesics. It should be used as a second-line treatment in patients who don't initially respond to the treatments that are more likely to work. (LOE = 1a)

Reference
 Gilman J, Brown MD, Innes GD, Grafstein E, Roberts TE, Rowe BM. Parenteral dihydroergotamine for acute migraine headache: a systematic review of the literature. *Ann Emerg Med* 2002;45:392-402.

Study design: Systematic review

Setting: Emergency department

Synopsis
 Ergot derivatives such as dihydroergotamine (DHE) have been used for several decades to treat or prevent migraine. This systematic review assembled and evaluated the available research on the effectiveness of DHE, as compared with other drugs. The authors contacted experts, solicited pharmaceutical companies for research, and searched 5 databases, conference proceedings, and clinical practice guidelines. They used research published in any language and included unpublished research. The studies were evaluated by 2 independent reviewers for inclusion and were evaluated for quality. The process turned up 11 randomized controlled trials, 5 of which were of low quality (graded 3 or 2 out of 5). Most of the research (8 of 11 studies) used DHE in combination with an anti-emetic, and all but one of these studies of the combination used either prochlorperazine (Compazine) or metoprololamide (Reglan) as the anti-emetic, both of which have independent effects on migraine pain. When used alone, DHE was less effective than sumatriptan (Imitrex) in completely resolving migraine, reducing headache pain, improving function, or reducing nausea, although it was more effective at preventing (or not causing) migraine relapse. When used in combination with an anti-emetic, it was generally as effective as meperidine (pethidine, Demerol), valproate (Divalproex), or ketorolac (Toradol) in completely resolving migraine, reducing headache pain, improving function, and reducing nausea. The study results were heterogeneous, which

Systematic Textbook

The equivalent of clinical textbook

- eMedicine
- Up-to-Date

Search the Clinical Knowledge Base

Advanced Search Additional Searches Drug Search

GO Articles Images Search Help

Migraine Headache

Format for Printing Get CME/CPE for article
 Rate this article Email to a colleague
 Search for Guidelines Search MEDLINE

Neurology - Headache And Pain

Last Updated: June 29, 2006

Synonyms and related keywords: complex migraine, migraine equivalent, migraine variant, classic migraine, cluster headache, aura

AUTHOR INFORMATION Section 1 of 10 Next

Author Information, Introduction, Clinical, Differentials, Workup, Treatment, Medication, Follow-up, Multimedia, Bibliography.

Author: **Jasvinder Chawla, MD**, Director, Neurology Residency Training Program, Assistant Professor of Neurology, Department of Neurology, Loyola University of Chicago Medical Center

Coauthor(s): **Amelito Malavera, MD**, Consulting Staff, Department of Neurology, Redington Medical Associates; **Jorge Mendezabal, MD**, Attending Neurologist, Corpus Christi Neurology, Corpus Christi Medical Center, Christus Spohn Medical Center

Jasvinder Chawla, MD, is a member of the following medical societies: [American Academy of Neurology](#), [American Association of Neuromuscular and Electrophysiological Medicine](#), and [American Clinical Neurophysiology Society](#).

Editor(s): **Joseph Quinn, MD**, Assistant Professor, Department of Neurology, Portland VA Medical Center, Oregon Health Sciences University; **Francisco Talavera, PharmD, PhD**, Senior Pharmacy Editor, eMedicine; **James H Halsey, MD**, Professor, Department of Neurology, University of Alabama Medical Center; **Matthew J Baker, MD**, Consulting Staff, Cofree Neurologic Specialists, Naples Community Hospital, and Nicholas Iversen MD, Chief Editor, Medline Neurology, Consulting Staff, Neurology Residency and Consultants

Synopses and Structured Abstracts



- Evidence-based journal abstracts
- Synoptic journals include
 - *ACP Journal Club*,
 - *Evidence Based Medicine*, and
 - a number of others.

ACP Journal Club
ACP Journal Club and Best Evidence Copyright 2007 American College of Physicians - American Society of Internal Medicine. All rights reserved. Volume 146(1), January/February 2007, p 23

Review: History and physical examination can accurately identify migraine and the need for neuroimaging in patients with headache
(Diagnosis)

Source of funding: Not stated.
For correspondence: Dr. C.R. Booth, Mount Sinai Hospital, Toronto, Ontario, Canada. E-mail: christopher.booth@utoronto.ca

Abstract and Commentary for: Detbky HE, McDonald DR, Banerjee MO, et al. **Does this patient with headache have a migraine or need neuroimaging?** *JAMA*. 2006;296:1274-83. PMID at UTHSCSA | Library Holdings

Abstract

Question: In patients with headache, do features of the history and physical examination accurately identify those with migraine and those who should undergo neuroimaging?

Methods: Data sources
MEDLINE (to November 2005) and reference lists of primary studies, review articles, and textbooks.
Study selection and assessment

Studies that assessed the usefulness of history and physical examination in predicting the diagnosis of a migraine-type headache using International Headache Society criteria applied by a neurologist as the gold standard, and the presence of significant intracranial pathology in adults with nontraumatic headache using neuroimaging as the gold standard. Studies assessing patients with a specific underlying chronic disease were excluded. 4 studies of migraine (n = 1210, mean age range 39 to 40 y, prevalence 50% to 89%) and 11 studies of neuroimaging (n = 3725, mean age range 35 to 52 y, prevalence of abnormality 0% to 46%) met the selection criteria.

Links
Abstract
Complete Reference
Library Holdings
Find at UTHSCSA

Outline
• Abstract
• Commentary
• References

Graphics
• Table: Individual st...

Recent History
Review: History and phys...

Systematic Reviews



Summaries based on:

- exhaustive searches for evidence;
- explicit scientific reviews of the studies uncovered in the search; and
- systematic assembly of the evidence

in order to provide as clear a signal about the effects of a health care intervention as the accumulated evidence will allow.

Cochrane Collaboration



- What is it?
 - “Systematic, up-to-date reviews of all relevant RCTs of health care”
 - Usually treatment – not very many screening and diagnosis topics
- Cochrane Principles
 - Minimizing bias
 - Ensuring quality
 - Keeping up to date
- The “Cochrane Library” has three parts:
 - Cochrane Database of Systematic Reviews
 - Controlled Trials register
 - Database of Abstracts of reviews of Effectiveness (DARE)

The Cochrane Database of Systematic Reviews

Selective serotonin re-uptake inhibitors (SSRIs) for preventing migraine and tension-type headaches

Moja, PL; Cui, C; Sterb, RR; Canepari, C

Date of Most Recent Update: 16-December-2005

Date of Most Recent Substantive Update: 04-March-2005

Abstract

Background: Headache is a common medical problem. In view of recent discoveries about the role of serotonin in pain mechanisms, selective serotonin re-uptake inhibitors (SSRIs) have been evaluated for the prevention of migraine and tension-type headaches (TTH).

Objectives: To evaluate the efficacy and tolerability of SSRIs for preventing migraine and TTH.

Search strategy: We searched MEDLINE (1966-2004), EMBASE (1994-2003), the Cochrane Central Register of Controlled Trials (Issue 4, 2003), and reference lists of retrieved articles, headache Quarterly was hand searched from 1990 to 2003.

Practice Guidelines



Clinical practice guidelines are (usually) systematically developed statements to help clinicians and patients with decisions about appropriate health care for specific clinical circumstances.

Clinical Practice Guidelines



- [Institute for Clinical Systems](http://www.icsi.org/knowledge/)
 - <http://www.icsi.org/knowledge/>
- [National Guidelines Clearinghouse](http://www.guidelines.gov/)
 - <http://www.guidelines.gov/>
- [U.S. Preventive Services Task Force](http://www.ahrq.gov/browse/)
 - <http://www.ahrq.gov/browse/>

EBM Process: Step 2



How to Find Current Best Evidence: Creating a Search Strategy

Determine your best method



- Find a way to search, then do it!
- Starting with a systematic text is not a bad thing, but remember that it may not answer all questions.
- Don't ignore original research

Our searching topic



Why is screening mammography controversial for women in their 40's? Is there a reduction in breast cancer mortality? Is there potential harm?

Select your terms



- Based on your terms:
 - P
 - I
 - C
 - O

Hints for good search strategies



- Use one term at a time
- Use text words and subject heading appropriately
- Use “explode” function
- Connect with Boolean operators as separate step
- Use subheadings rarely

Let's do some searching!